

RCRA Inspection Report

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2) Facility Information

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EPA ID No. : KYD 005 009 923

3) Responsible Official(s)

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5) Date of Inspection

September 20 and 21, 2005

6) Applicable Regulations

Title 40 Parts 260 through 270, Part 273 and Part 279 of the Code of Federal Regulations (C.F.R.) and Title 401 Kentucky Administrative Regulations (KAR) Chapters 30-40

7) Purpose of Inspection

On September 20th and 21st, 2005, William Kappler of the U.S. Environmental Protection Agency (EPA) and Lloyd Funkhouser of the Kentucky Department for Environmental Protection (KYDEP) inspected the Calgon Carbon Corporation - Big Sandy Plant to determine the facility's compliance status with the Resource Conservation and Recovery Act (RCRA) and Commonwealth of Kentucky regulations. Several participants representing Calgon Carbon Corporation accompanied the inspectors.

On November 16, 2005, EPA issued Calgon an Information Request pursuant to Section 3007 of RCRA, 42 U.S.C. § 6927. Calgon responded to EPA's Information Request on December 13, 2005.

On May 25, 2006, EPA issued Calgon a second Information Request pursuant to Section 3007 of RCRA, 42 U.S.C. § 6927. Calgon responded to EPA's Information Request on June 26, 2006.

8) Facility Description

Calgon Carbon Corporation - Big Sandy Plant (Calgon) is located on Route 23 South, Catlettsburg, Boyd County, Kentucky. Calgon has been operating at its current location since 1960. Calgon employs 154 people. Calgon's manufacturing operation is conducted 24 hours per day, seven days per week. Calgon's normal business hours are Monday through Friday from 8:00 am to 5:00 p.m. Calgon owns the property, which consists of approximately 20 to 30 acres of land. The SIC code for this facility is 2899 and the NAICS is 325998. The Big Sandy Water District provides Calgon with potable water and Calgon operates an on-site domestic wastewater treatment plant. Calgon operates several other water and wastewater treatment facilities. One facility treats river water for use in its process operations. One facility treats process water for use as soft water in its boiler systems. Calgon operates an industrial wastewater treatment plant for wastewater generated from spent carbon dewatering operations. Calgon also operates an acid wash wastewater treatment plant for low pH wastewater using hydrated lime and bag house dust as a substitute for some of the lime. The treated effluent is discharged to storm water lagoons with final discharge to surface water via an NPDES permit. Calgon's NPDES permit (KDOW Permit No. KY0022276) became effective May 1, 2002 and expired on March 31, 2006. Calgon was inspected as a treatment and storage facility (TSF) and large quantity generator of hazardous waste.

Calgon received a RCRA Part B permit (Permit Number KYD-005-009-923) for the storage of hazardous waste carbon in aboveground storage tanks, effective on November 1, 1990. The permit expired on October 31, 2000. KYDEP issued a Part B permit modification to Calgon on June 25, 1991, August 28, 1991, December 13, 1991, and October 31, 1995. The October 31, 1995, modification allowed the storage of hazardous waste carbon in containers. All modifications to the Part B permit

expired on October 31, 2000. Calgon submitted a RCRA Part B permit renewal application to store hazardous waste in tanks and containers and to treat hazardous waste in the Carbon Regeneration Unit to KYDEP on or about April 2000.

Calgon manufactures primary granulated activated carbon products used by a wide variety of industry as a high surface area absorber in the chemical, biological, radio active and food industry. Calgon makes over 150 products for various liquid and gas applications using several primary carbon production lines to manufacture the carbon. Below is a history of the primary carbon unit lines construction and demolition.

The A-Line and C-Line were constructed and began operation in 1960 and 1968, respectively. The A-Line and C-Line were demolished in 1993 and in 2000, respectively.

The B-Line was constructed and began operation in 1964 and rebuilt in 1990. The B-line was non-operational at the time of this inspection.

The D-Line was constructed and began operation in 1973 and the E-Line was constructed and began operation in 1976. Presently, both units are operating.

Carbon is conveyed from the D and E-lines to the acid wash area.

Primary Carbon Production Process

There are four steps in the manufacturing of granular activated carbon at Calgon.

Mix Step

Raw coal material is mixed in a bowl with petroleum pitch (bottoms of crude distillation). The mixture is ground and with the application of pressure and steam it is recombined in a press room into briquettes. The briquette is next crushed and screened to reduce size. The carbon produced at this point has a 30 to 35 percent volatile material.

Bake Step

In this step enough volatile matter is removed from the carbon to make coke. The coke is processed in two large rotary kilns called "Pass Bakers" where the temperature and oxygen is increased. The temperature in the first Pass Baker increases from 300 degrees Fahrenheit to 600 degrees Fahrenheit to remove volatile material. In the second Pass Baker the temperature increases from 600 degrees Fahrenheit to 900 degrees Fahrenheit to drive off the remaining volatile material. The burn-off gas at 1,400 degrees Fahrenheit is used to produce steam in a boiler. Excess off-gas not used is discharged through an economizer, through a scrubber and discharged as a stack emission.

Activation Step

In this step the carbon is fed into the multi-hearth furnace internally lined with refractory brick. The furnace is maintained at a temperature between 1,800 and 2,000 degrees Fahrenheit. The carbon is fed into bins and fed at a designated rate. The carbon is initially fed from the outside top hearth and raker arms shift the carbon toward a steel center shaft. The raker arms on the furnace's next level shift the carbon toward the outer perimeter of the hearth and over the side to the next level. The zigzag motion continues until the carbon exits the furnace from the outer perimeter of the bottom hearth. The carbon

activation step generates a by-product of carbon powder, which is sold as a product. Activated carbon exiting from the furnace is cooled in a non-contact water rotary drum using water pumped from the Big Sandy River. The water from the Big Sandy River is treated in Calgon's on-site water treatment plant prior to use.

Screener Step

The cooled activated carbon is next processed in a screener, which crushes large carbon particles to the appropriate sized granular carbon. The very large sized carbon material (Klinkers) is disposed. An automatic sampler obtains carbon samples for product analysis in Calgon's laboratory. The finished granular activated carbon is stored in product bins prior to packaging or stored in bulk storage bins prior to off-site shipment.

Acid Wash Process

Calgon utilizes five acid reactors to produce high-grade activated carbon. Calgon washes the carbon with hydrochloric acid (HCL) to remove trace metals. The wash step is performed in a 25,000 pound batch process. The carbon is initially washed in a three percent HCL solution for three hours. The carbon is next washed in a one percent HCL solution for three hours. The carbon is water rinsed, neutralized with soda ash, water rinsed a second time, dewatered, and dried in dryer feed tanks. Wastewater generated from the acid wash reactors is treated in a wastewater treatment system.

Fine Mesh Production

In this mechanical process step the activated carbon is reduced to smaller sizes by crushing and screening the product.

9) Findings

Primary Carbon Production Area

The facility was manufacturing granular activated carbon at the time of this inspection. Inspectors observed carbon material outdoors on the ground in several areas of the production area. The carbon material is washed with water into the drains. The wastewater is conveyed by underground pipes to Calgon's on-site storm water lagoons. Calgon stated to inspectors that the primary carbon has been sampled and analyzed for metals.

Hazardous Waste Container Storage Building (Thaw Building)

On October 31, 1995, Calgon's RCRA Part B permit was modified to allow the storage of spent hazardous waste carbon in containers. Calgon is permitted to store hazardous waste in containers in the Thaw Building and outdoors on paved surfaces in specific locations identified in Figure D-1 of the RCRA Part B permit. A total volume of 52,800 gallons of hazardous waste is permitted to be stored in accordance with the conditions of the RCRA Part B permit.

The Thaw Building is located west of the Carbon Regeneration Unit (CRU). The building is a large five bay unit, approximately 150 feet long by 100 feet wide. Metal overhead doors secure the building. The structure consists of a concrete floor, metal frame, metal exterior siding and a metal roof. The walls on the north and south side are constructed with concrete curbs. The concrete floor is sloped (plant west to east) onto the Area A pavement which is sloped to the collection trench system and to the sump. The inspector did not observe the use of an epoxy coating or any other protective coating to create an

impermeable surface on the concrete floor.

Inspection of the Thaw Building began on the south side of the building. Inspection of the floor in front of the containers on the south side and near the middle of the building found cracks in the concrete, previously repaired cracks in a structurally eroded condition, and the caulked floor joints eroded and/or in disrepair (photographs 16, 17, 18, 19, & 20).

Security measures appeared adequate, which included a fence surrounding the perimeter of the property and adequate signs upon entering the property. The inspectors observed a non-sparking shovel and some clay absorbent located in the building. Additional emergency spill and personnel protective equipment in quantities sufficient to respond to a large spill is not kept in the building, but in other accessible areas of the facility.

Numerous containers ranging from 55 gallons to 20,000 gallons in volume were stored in several rows in the building. The containers, except for the 20,000 gallon tankers, were stored on wooden pallets and stacked two high. All containers were full, closed, stored with adequate aisle space and affixed with a yellow label marked with the words "Hazardous Waste". Calgon was storing approximately 45,948 gallons of hazardous waste in the Thaw Building and outside the building at the time of this inspection.

The following containers of hazardous waste were observed stored in the Thaw Building beginning from the south side to the north side of the building.

Two 1,000 pound super sacks of spent carbon and trichloroethylene (D040) generated by Edwards Air Force Base (CA1 570 024 504). Both containers were marked with the generator accumulation dates 8/9/05. The containers were not marked with the date storage began (photograph 4).

Five 900 pound containers of spent carbon and benzene (D018) generated by Catlettsburg Refining (KYD 041 376 138). The containers were marked with the generator accumulation dates 9/1/05, 9/6/05, 9/7/05, or 9/12/05. The containers were not marked with the date storage began (photograph 5).

Five 1,800 pound containers of spent carbon and benzene (D018) generated by Marathon Ashland (TXD 008 079 501). The containers were marked with the generator accumulation dates 8/22/05, 9/2/05, 9/6/05, 9/8/05, and 9/9/05. The containers were not marked with the date storage began (photograph 6)

Two 1,000 pound super sacks of spent carbon generated by National RE/Souren LLC/Smith Industries Site B (MIR 000 035 238). Both containers were marked with the generator accumulation dates 8/10/05. The containers were not marked with the date storage began (photograph 7).

Four 1,000 pound super sacks of spent carbon and benzene (D018) generated by Marathon Ashland (TXD 008 079 501). The containers were marked with the generator accumulation date 8/30/05. The containers were not marked with the date storage began

Four 900 pound containers of spent carbon and solvents (F001, F003, F005) generated by Keystone Cement Company (PAD 002 389 559). The containers were marked with the generator accumulation

date of 6/14/05, 7/22/05, or 8/15/05. The containers were not marked with the date storage began (photograph 8).

One 1,000 pound super sack of spent carbon and trichloroethylene (D040) generated by Edwards Air Force Base (CA1 570 024 504). The container was marked with the generator accumulation date 6/20/05. The container was not marked with the date storage began.

Two 1,000 pound super sacks of spent carbon and benzene (D018) generated by Marathon Ashland (TXD 008 079 501). The containers were marked with the generator accumulation date 8/30/05. The containers were not marked with the date storage began (photograph 9).

Eight 900 pound containers of spent carbon and benzene (D018) generated by Citgo Petroleum Corp (LAD 008 080 350). The containers were marked with the generator accumulation dates 2/23/05, 6/7/05, 6/21/05, 8/31/05, 9/2/05, 9/7/05, 9/8/05, and 9/20/05. The containers were not marked with the date storage began (photograph 10).

Ten 1,000 pound super sacks of spent carbon and 1, 2-dichloroethane and trichloroethylene (D028, D040) generated by "DiMperio Property Site Group" (CERCLA waste). The containers were marked with the generator accumulation dates 5/21/05, 5/26/05, 7/8/05, 7/29/05, or 8/24/05. The containers were not marked with the date storage began (photograph 11).

Nineteen 55 gallon containers of spent carbon and benzene (D018) generated by Marathon Ashland (TXD 008 079 501). The containers were marked with generator accumulation dates in the months of August or September 2005. The containers were not marked with the date storage began (photograph 13).

Two 55 gallon containers of spent carbon and tetrachlorethene and trichlorethene (U210, U228) generated by Detrex Corp (OHD 004 165 924). Both containers were marked with generator accumulation dates 7/9/05. The containers were not marked with the date storage began. One container appeared to be leaking from its side and it appeared rusted along the side and along the bottom perimeter of the container (photographs 2 & 3).

Two 55 gallon containers of spent carbon generated by E. I. DuPont De Nemours and Company (WVD 005 012 851). The containers were marked with generator accumulation dates 6/20/05. The containers were not marked with the date storage began.

One 900 pound container of spent carbon and trichloroethylene and 1,1,1-trichloroethane (F002) generated by United Technologies. The container was marked with the generator accumulation date 7/12/05. The container was not marked with the date storage began (photograph 14).

Two 20,000 gallon containers labeled hazardous waste and marked with the words "Spent Carbon". The containers were marked with accumulation dates 9/20/05. The containers were not marked with the date storage began (photograph 12).

Pursuant to RCRA permit specific condition II.I.6 and RCRA Section 3005 given in 40 CFR § 264.175(b)(1)/401 KAR 34:180, Section 6(2)(a), Calgon must have a containment system which is

free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. The concrete system in the container storage area was deteriorated, cracked, and previously repaired cracks in a structurally eroded condition. Calgon is operating the facility in violation of its RCRA Part B permit condition II.I.6 and is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.C.1 and RCRA Section 3005 given in 40 CFR § 264.31/401 KAR 34:030, Section 2, Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. The containment system in the permitted container storage area is in disrepair. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.I.2 and RCRA Section 3005 given in 40 CFR § 264.171/401 KAR 34:180 Section 2, Calgon did not adhere to a condition for exemption from RCRA § 3005 by failing to keep a 55-gallon container of hazardous waste in good condition. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.I.4 and RCRA Section 3005 given in 40 CFR § 264.173(b)/401 KAR 34:180 Section 4(2), Calgon did not adhere to a condition for exemption from RCRA § 3005. A 55-gallon container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.I.4 and RCRA Section 3005 given in 40 CFR § 264.174/401 KAR 34:180 Section 5 Calgon did not adhere to a condition for exemption from RCRA § 3005 by inspecting areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. A 55-gallon container of hazardous waste was leaking. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.C.1 and RCRA Section 3005 given in 40 CFR § 264.31/401 KAR 34:030, Section 2, Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Calgon had a release of hazardous waste from one 55-gallon container. Calgon is illegally storing hazardous waste in violation of RCRA of RCRA § 3005.

Pursuant to RCRA permit specific condition II.I.1.b, Calgon may store permitted hazardous waste only in containers specified in the permit in table D-1. Inspectors observed two 20,000 gallon containers labeled hazardous waste and marked with the words "Spent Carbon". The containers were marked with accumulation dates 9/20/05. The 20,000 gallon containers are not permitted for storage in the permitted unit. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.I.9 and RCRA Section 3004(j) given in 40 CFR § 268.50 (a)(2)(i)/401 KAR 37:050, Section 1(b)(1), Calgon did not meet the condition for an owner or operator of a hazardous waste treatment, storage, or disposal facility that stores such wastes in tanks, containers, or containment buildings, which requires that each container is marked with the date each period of accumulation begins. Calgon failed to mark storage dates on containers in the permitted storage area. Calgon is illegally storing hazardous waste in violation of RCRA § 3004(j).

Carbon Regeneration Unit Container Storage Yard

This area is paved with asphalt and is located slightly to the southeast of the Thaw Building. The area is sloped to the south and/or southeast towards the CRU's main sumps. Calgon is permitted to store hazardous waste in containers outdoors on paved surfaces in specific locations identified in Figure D-1 of the RCRA Part B permit. Inspection of the areas surrounding and near to containers of hazardous waste found cracks in the paving and found previously repaired cracks in a structurally eroded condition (photographs 24, 27, 28, 29, & 30).

In addition, inspection of the paved surface in front of the Thaw Building and the area surrounding and/or near to containers of hazardous waste found a release of spent carbon (photograph 31).

Several 1,000 pound containers (super sacks) of stored hazardous waste were inspected in this area. The 1,000 pound containers were stored on wooden pallets and stacked two high. All containers were full, closed, stored with adequate aisle space and affixed with a yellow label marked with the words "Hazardous Waste". The following containers of hazardous waste were observed stored in this area.

Two 1,000 pound containers of spent carbon generated by Ippocito (CAC 002 592 349). The EPA identification number marked on the label did not correspond to a presently known registered hazardous waste generator. Both containers were not marked with generator accumulation dates and not marked with the date storage began (photographs 21, 22, & 23).

Four 1,000 pound containers of spent carbon and trichloroethylene (D040) generated by Edwards Air Force Base (CA1 570 024 504). The containers were marked with the generator accumulation dates 6/20/05 or 8/5/05. The containers were not marked with the date storage began.

Four 1,000 pound containers of spent carbon and trichloroethylene (D040) were observed next to the above mentioned containers. The containers were marked with the accumulation date 8/9/05. The containers were not marked with the date storage began.

Pursuant to RCRA permit specific condition II.I.9 and RCRA Section 3004(j) given in 40 CFR § 268.50 (a)(2)(i)/401 KAR 37:050, Section 1(b)(1), Calgon did not meet the condition for an owner or operator of a hazardous waste treatment, storage, or disposal facility that stores such wastes in tanks, containers, or containment buildings, which requires that each container is marked with the date each period of accumulation begins. Calgon failed to mark storage dates on containers stored in its outdoor permitted storage area. Calgon is illegally storing hazardous waste in violation of RCRA § 3004(j).

Pursuant to RCRA permit specific condition II.I.6 and RCRA Section 3005 given in 40 CFR § 264.175(b)(1)/401 KAR 34:180, Section 6(2)(a), Calgon must have a containment system which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. Since the concrete in the container storage area had deteriorated, Calgon is operating the facility in violation of its RCRA Part B permit condition II.I.6 and is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.C.1 and RCRA Section 3005 given in 40 CFR § 264.31/401 KAR 34:030, Section 2. Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

90 Day or Less Accumulation Area

Located in an area in front of the Thaw Building inspectors observed the containers of hazardous waste generated from Calgon's operations. The waste was generated from maintenance and repair work performed on the CRU and Calgon is subject to the management standards for containers accumulating hazardous waste for less than 90 days. All containers were full, closed, stored with adequate aisle space and affixed with a label marked with the words "Hazardous Waste".

Two 20 cubic yard containers labeled as hazardous waste and marked with the words "waste furnace hearths". The containers were marked with the generator accumulation dates 9/12/05 and 9/16/05.

Two 20 to 30 cubic yard containers labeled as hazardous waste and marked with the words "waste water fines". The containers were marked with the generator accumulation dates 9/7/05 and 9/17/05.

Located adjacent to the hazardous waste container storage building were the following containers of hazardous waste generated by Calgon Carbon Corporation. All containers were closed, stored with adequate aisle space and affixed with a label marked with the words "Hazardous Waste".

One 20 to 30 cubic yard container labeled as hazardous waste and marked with the words "furnace hearth slag". The container was marked with the generator accumulation date 9/16/05. Inspectors observed a release of furnace hearth slag from the container onto the container's side and onto or near to cracks on the paved ground (photographs 25 & 26).

One 20 cubic yard container labeled as hazardous waste and marked with the words "off gas debris". The container was marked with the generator accumulation date 9/12/05.

One 20 cubic yard container labeled as hazardous waste and marked with the words "SDA and hearth debris". The container was marked with the generator accumulation date 9/12/05.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.31/401 KAR 35:030, Section 2. Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden

release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. A release of hazardous waste to the paved ground in the 90 day or less accumulation area was observed. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

RCRA Permitted Hazardous Waste Tanks - Area A

The permitted hazardous waste tanks in Area A are located on the south side of the CRU building. The permitted tanks consist of one 7,600 gallon carbon blend tank, one 12,400 gallon carbon blend tank, and one 10,200 gallon spent carbon degritter tank. The carbon blend tanks and the carbon degritter tank are fixed roof tanks and are equipped with level gauges. Each blend tank is constructed with a six inch atmospheric vent, tied to the VOC control system. The tanks are operated at atmospheric pressure and pressure controls are not provided with the tanks. The degritter tank is equipped with an overflow line to the old dirty water storage tank. Each tank is provided with its own secondary containment system. These RCRA permitted units and the RCRA units discussed below were not inspected due to time limitations. However, based on Calgon's RCRA Part B permit the following waste management activities are conducted in this area.

Area A Unloading Operations

Calgon's unloading and transfer procedures conducted in Area A are documented in the "Big Sandy Reactivation Operating Manual". Spent carbon is delivered to this area in enclosed trailers, dump trucks, or small containers. The spent carbon unloading operation consists of unloading into a sump, drum dumper, and/or into the degritter and carbon blend tanks. Excess water used to transfer spent carbon into a given tank overflows through a pipe system to the dirty water tank.

Unloading Sump

The unloading sump is located at the southwest corner of the facility. The sump is covered by a screen to capture oversized material and is enclosed to prevent spillage off the paved area. The concrete pad is sloped toward the sump to facilitate the transfer. Water is used to wash the spent carbon into the sump and the spent carbon is transferred via a pump directly to any of eleven tanks in Areas A and B. Spills of spent carbon are directed into the sump or trenches using water. Calgon's unloading and process of transferring spent carbon into the sump is not designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment and does not appear to control air pollutant emissions from the hazardous waste management unit in accordance with the requirements of 40 CFR § 264/265.31 and 40 CFR § 264.1082(b)/265.1083(b).

Drum Dumper

Spent carbon is also unloaded from a small container using a mechanical drum dumper to upend the container directly over the screened portion of the pit to drain the container. Water is mixed with the spent carbon to create slurry prior to pumping the waste to a pre-selected storage tank. A container designed for wet discharge is placed on the screen and filled with water. The bottom discharge valve is opened to allow the spent carbon to drain. Calgon's unloading and process of transferring spent carbon into the drum dumper is not designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment

and does not appear to control air pollutant emissions from the hazardous waste management unit in accordance with the requirements of 40 CFR § 264/265.31 and 40 CFR § 264.1082(b)/2651083(b).

Degritter and Blend Tanks

Spent carbon contaminated with sand received in an enclosed trailer can also be unloaded directly into a degritter tank and/or the carbon blend tanks. Dedicated transfer hoses are connected from the enclosed trailer to the tank fill line. The trailer is pressurized by a regulated air supply to transfer the spent carbon to the tank.

RCRA Permitted Hazardous Waste Tanks - Area B

The permitted hazardous waste tanks in Area B are located adjacent to the CRU building. They consist of six spent carbon storage tanks (D-701 through D-706), one spent carbon desander feed storage tank (D-901), one spent carbon desander dirty water tank (D-902), and one non-hazardous waste spent carbon tank (D-903). Tanks D-901 and D-902 operate as spent carbon desander units. Each tank has a capacity of 17,500 gallons, except for tank D-902, which has a capacity of 20,000 gallons. Calgon also uses one 11,500 gallon day tank (D-708), and one 20,000 gallon dirty water tank (D-707). The day tank was empty and undergoing scheduled maintenance and repair work.

Based on information provided by Calgon on December 13, 2005, Table 1 lists the amount of spent carbon stored in each tank in Area B at the time of the inspection.

Table 1

Tank Number	Tank	Content	Amount (gallons)
D-701	Spent Carbon Tank	Spent Carbon & Water	16,625
D-702	Spent Carbon Tank	Spent Carbon & Water	14,000
D-703	Spent Carbon Tank	Spent Carbon & Water	17,500
D-704	Spent Carbon Tank	Spent Carbon & Water	14,875
D-705	Spent Carbon Tank	Spent Carbon & Water	14,000
D-706	Spent Carbon Tank	Spent Carbon & Water	14,000
D-901	Desander Feed Storage Tank	Sandy Carbon	0
D-902	Desander Dirty Water Tank	Dirty Water	3,000
D-903	Spent Carbon Tank	Non-Haz. Spent Carbon	8,750

The tanks are constructed on a concrete pad and surrounded by a 4 to 5 foot high concrete wall. Metal steps located on one side of the tank area provide access to the tank farm's metal grated roof.

Inspectors accessed the roof of the tank area to determine the compliance status of each storage tank with the RCRA tank standards and air emission standards (Subpart J and Subpart, AA, BB, and CC of 40 CFR § 264). Inspection of the storage tanks found they are each fixed roof tanks constructed with a six inch open gooseneck vent on top of each tank. Each storage tank is closed-vented to a main vent line which is connected to a vapor phase carbon adsorption unit (control device), consisting of activated carbon. Inspection of each vent for tanks D-701 through D-706 found the tanks not maintained under a negative pressure. Inspectors observed the thick accumulation of spent carbon substantially covering the opening of each vent for storage tanks D-701, D-702, and D-704. Inspectors also observed the release of spent carbon from the vents of tank D-701, D-702, and D-704 to the roof of each tank. In addition, the cap on the level indicator ("Bin Cable"), which connects to a float to indicate the level of spent carbon in

tank D-704 was disconnected from the fixed roof and not secured in the closed position (photographs 35, 36, 37, 38, & 39).

Based on information provided by Calgon on June 26, 2006, the spent carbon observed in the vent and roof of hazardous waste storage tanks D-701, D-702, and D-704 had been accumulating for approximately 23 hours. Calgon explained the release occurred as a result of full tanks and the release consisted of primarily foam generated from the spent carbon slurry. Calgon also explained they removed the spent carbon from the vent and the roof of each tank by spraying the waste with water into the secondary containment dike. The spent carbon and water was pumped to the dirty water tank.

Inspection of the spent carbon desander tank and non-hazardous waste tank found they are each fixed roof tanks constructed with a six inch open gooseneck vent on top of each tank. Each storage tank is closed-vented to a main vent line which is connected to a control device. Inspection of each vent for tanks D-901, D-902, and D-903 found the tanks not maintained under a negative pressure.

Based on Calgon's RCRA permit the tank area secondary containment structure has a capacity of approximately 95,000 gallons. Inspection of the tank area's containment structure found the concrete floor and concrete walls free of cracks, gaps, and disrepair. A metal sign is attached to the bottom of each tank with the words "hazardous waste spent carbon". Each tank's hazardous waste label could be clearly read, except for storage tank D-701. The hazardous waste label for tank D-701 could not be clearly read due to a release of spent carbon on the label. Storage dates were not marked on each tank (photographs 40, & 41).

Further inspection of the equipment within the secondary containment system found that the main vent line to the control device was broken in half. At the time of this inspection Calgon could not determine the length of time the vent line had been broken. Based on information (Malfunction Report) provided by Calgon on December 13, 2005, the contractor broke the vent line during turnaround work. Calgon determined that the release from the broken vent line consisted of 0.05 pounds of Benzene and 0.4 pounds of Volatile Organic Compounds. The malfunction occurred on 9/21/05 at 10:00 am and ended on 9/21/05 at 3:25 pm. Calgon began repair work to the broken vent line upon discovery of the malfunction by EPA (photograph 42).

Pursuant to RCRA permit specific condition II.C.1 and RCRA Section 3005 given in 40 CFR § 264.31/401 KAR 34:030, Section 2, Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Inspection of the tanks found releases of hazardous waste carbon from the open vents of tanks D-701, D-702, and D-704. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.C.1 and RCRA Section 3005 given in 40 CFR § 264.31/401 KAR 34:030, Section 2, Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Calgon did not maintain tanks D-701 through D-706 and tanks D-901 and D-902 under a negative pressure resulting in the release of hazardous waste to the environment. In addition, an inspection of the closed-vent system (main vent line) to

the control device was broken in half. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition II.I.9 and RCRA Section 3004(j) given in 40 CFR § 268.50(a)(2)(ii)/401 KAR 37:050, Section 1(b)(2), Calgon did not meet the condition for an owner or operator of a hazardous waste treatment, storage, or disposal facility that stores such wastes in tanks, containers, or containment buildings solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and, each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility. Regardless of whether the tank itself is marked, an owner/ operator shall comply with the operating record requirements specified in Section 264.73/Section 4 of 401 KAR 34:050 or Section 265.73/Section 4 of 401 KAR 35:050. The label attached to tank D-701 did not clearly identify the words hazardous waste and storage dates were not marked on tank D-701 through D-706 and tank D-901 and D-902. Calgon is illegally storing hazardous waste in violation of RCRA § 3004(j).

Area B Unloading Operations

These RCRA units were not inspected due to time limitations. However, based on Calgon's RCRA Part B permit the following waste management activities are conducted in this area.

Calgon's unloading and transfer procedures conducted in Area B are similar to the unloading operations in Area A. The spent carbon unloading operation consists of unloading into a sump, into storage tanks and/or into a desander tank system. Spent carbon is delivered to this area in enclosed trailers, dump trucks, or small containers.

Unloading Sump

The unloading sump is located next to the Area B tanks. All enclosed trailers, dump trucks, and small containers are unloaded into the sump. The sump is covered by a screen to capture oversized material and is enclosed to prevent spillage off the paved area. The concrete pad is sloped toward the sump to facilitate the transfer. Water is used to wash the spent carbon into the sump and the spent carbon is transferred via a pump directly to one of six storage tanks in Areas B. Spills of spent carbon are directed into the sump or trenches using water. Calgon's unloading and process of transferring spent carbon into the sump is not designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment and does not appear to control air pollutant emissions from the hazardous waste management unit in accordance with the requirements of 40 CFR § 264/265.31 and 40 CFR § 264.1082(b)/265.1083(b).

Unloading Spent Carbon to Hazardous Waste Storage Tanks

Sand free spent carbon received in an enclosed trailer or small container can be unloaded directly into the storage tanks (D-701-706 and D-903). Dedicated transfer hoses are connected from the enclosed trailer or container to the dedicated tank fill line. The trailer or container is pressurized by a regulated air supply to assist in the transfer of spent carbon to the tank. Water is added to create spent carbon slurry and pumped to one of the seven storage tanks.

Unloading Spent Carbon to Desander Feed Storage Tank

Spent carbon contaminated with sand received in an enclosed trailer or small container can be unloaded directly into the Desander Feed Storage Tank (D-901). A dedicated transfer hose is connected from the enclosed trailer or container to the dedicated tank fill line. The trailer or container is pressurized by a regulated air supply to assist in the transfer of spent carbon to the tank. Water is added to create spent carbon slurry and pumped to one of the two storage tanks (D-704 or D-705).

RCRA Air Emission Standards – Tanks

Calgon was issued a Title 5 Clean Air Permit on or about August 2000. Calgon's requirement to meet the hazardous waste storage tank leak detection and repair requirement is performed under the Air Permit in lieu of 40 CFR § 265, Subpart BB and CC. Calgon's exemption to 40 CFR § 265, Subpart BB and CC is based on a January 1998 assessment (Project Number AC034), titled "Compliance Manual for 40 CFR § 264 Subpart CC, Air Emissions Standards For Tanks, Surface Impoundments, and Containers, Calgon Carbon Corporation, Catlettsburg, Kentucky" (January 1998 Compliance Manual). Calgon has provided EPA with a copy of the January 1998 Compliance Manual. Calgon claims that all containers and tanks are Level 1.

Calgon submitted information on Subparts AA, BB, and CC in response to EPA's November 16, 2005 information request (Question - 14). The information requested by EPA was for the time period January 1, 2004, to September 21, 2005. Calgon's compliance status with 40 CFR 264 Subparts AA, BB, and CC, is based on the information they provided.

Calgon states in its response to EPA that its facility is not subject to RCRA Organic Air Emissions Standards for equipment (Subpart BB). However, Calgon does not provide evidence that the total organic content of the wastes received from its customers is less than 10 percent by weight. Therefore, Calgon may be in violation of 40 CFR § 264.1063(d) and (g).

All equipment must be marked and associated with a hazardous waste management unit (HWMU). From the information provided, this does not appear to have been done or recorded. Therefore, Calgon may be in violation of 40 CFR § 264.1050(c).

In addition, the January 1998 Compliance Manual and subsequent Annual Screening Reports do not appear to include all tanks and miscellaneous units subject to Subpart CC. From review of Calgon's RCRA Permit Application and in their December 13, 2005 (Records - Question 14) response to EPA there are several tanks and miscellaneous unit that may be subject to Subpart CC.

The procedure and supporting documentation in the January 1998 Compliance Manual, Appendix A used to determine the tanks maximum organic vapor pressure appears to show that the facility may not be in compliance with the requirements of 40 CFR § 264.1084(c). In addition, the calculations do not appear to represent the vapor pressure of the waste store in each tank. It appears that the calculation procedure/method used is inadequate to determine the tank Level for Subpart CC purposes.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1033(k)(2), [Subpart AA, Standards Closed-Vent Systems and Control Devices], A closed-vent system shall meet either of the following design requirements: (2) A closed-vent system shall be designed to operate at a pressure below atmospheric pressure. Tanks D-701 through D-706 and D-901 through D-902 were not being

operated and maintained at a pressure below atmospheric pressure. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1033(l), [Subpart AA, Standards Closed-Vent Systems and Control Devices], The owner or operator shall monitor and inspect each closed-vent system required to comply with this section to ensure proper operation and maintenance of the closed-vent system by implementing the following requirements in (i-iv). Calgon did not monitor the closed-vent system for tanks D-701 through D-706 and D-901 through D-902 to ensure proper operation and maintenance. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1063(d), [Subpart BB, Test Methods and Procedures], in accordance with the waste analysis plan required by 40 CFR § 264.13(b), an owner or operator of a facility must determine, for each piece of equipment, whether the equipment contains or contacts a hazardous waste with organic concentration that equals or exceeds 10 percent by weight using the following: (1) Methods described in ASTM Methods D 2267-88, E 169-87, E 168-88, E 260-85 (incorporated by reference under Sec. 260.11); (2) Method 9060 or 8260 of SW-846 (incorporated by reference under 40 CFR 260.11); or (3) Application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced. Calgon did not comply with this portion of the Subpart BB regulations for the hazardous waste storage tanks D-701 through D-706 and D-901 through D-902. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1063(g), [Subpart BB, Test Methods and Procedures], samples used in determining the percent organic content shall be representative of the highest total organic content hazardous waste that is expected to be contained in or contact the equipment. Calgon did not comply with this portion of the Subpart BB regulations for the hazardous waste storage tanks D-701 through D-706 and D-901 through D-902. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1082(b), [Subpart CC, Air Emission General Standards], The owner or operator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in Section 264.1084 through 264.1087 of this subpart, as applicable to the hazardous waste management unit, except as provided for in paragraph (c) of this section. Calgon did not comply with this portion of the Subpart CC regulations for the hazardous waste storage tanks D-701 through D-706 and D-901 through D-902. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1084(d)(3), [Subpart CC, Standards for Tanks, Tank Level 2 Controls], Owners and operators controlling air pollutant emissions from a tank using Tank Level 2 controls shall use one of the following tanks: (3) A tank vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (264.1084(g)) of this section;. Calgon did not comply with this portion of the Subpart CC regulations for the hazardous waste storage tanks D-701 through D-706 and D-901 through D-902. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 § CFR 264.1084(g)(2), [Subpart CC, Standards for

Tanks], The owner or operator who controls air pollutant emissions from a tank by venting the tank to a control device shall meet the requirements specified in paragraphs (g)(1) through (g)(3) of this section. (requirements of 264.1087). Calgon did not secure the closure device on hazardous waste storage tank D-704. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1084(g)(3)(i), [Subpart CC, Standards for Tanks], The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures: (i) The fixed roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Calgon did not inspect and monitor the closure device on tank D-704 for the permitted hazardous waste storage tank. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1087(c)(1), [Subpart CC, Standards Closed-Vent Systems and Control Devices], The control device shall meet the following requirements in (i-iii). Calgon did not provided documentation that the control device used for tanks in Area B meet any of the criteria described in this section. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1089(e), [Subpart CC, Recordkeeping], The owner or operator using a closed-vent system and control device in accordance with the requirements of Section 264.1087, [Subpart CC, Standards for Closed-Vent Systems and Control Devices], of this subpart shall prepare and maintain records that include the following information in (1)(i-vii). Calgon did not comply with this portion of the Subpart CC regulations (Recordkeeping) for the hazardous waste storage tanks in Area B. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

RCRA Air Emission Standards – Containers

Calgon submitted information on Subparts AA, BB, and CC in response to EPA's November 16, 2005 information request (Question - 14). The information requested by EPA was for the time period from January 1, 2004 to September 21, 2005. Calgon's compliance status with 40 CFR 264 Subparts AA, BB, and CC, is based on the information they provided.

Containers, roll-offs and totes subject to Subpart CC appear to be inadequately addressed in the January 1998 Compliance Manual. Additional information is needed including; detail descriptions of the container and tote storage areas, number of containers/volumes and the type of closures and tarps that are used. The Daily Inspections must address condition of roll-offs, totes, and container covers and mechanisms for securing the container cover.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1082(b), [Subpart CC, Air Emission General Standards], The owner or operator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in Section 264.1084 through 264.1087 of this subpart, as applicable to the hazardous waste management unit, except as provided for in paragraph (c) of this section. Calgon must control air pollutant emissions from each hazardous waste management unit in accordance applicable Subpart CC regulations for the

permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1083(a), [Subpart CC, Waste Determination Procedures], Waste determination procedure to determine average volatile organic (VO) concentration of a hazardous waste at the point of waste origination. Calgon must determine the VO concentration of a hazardous waste at the point of waste origination for the permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1083(d), [Subpart CC, Waste Determinations] referencing 40 CFR § 265.1084(d), [Subpart CC, Waste Determinations], The procedure for determining no detectable organic emissions for the purpose of complying with this subpart shall be conducted in accordance with the procedures specified in 40 CFR § 264.1084(d). Calgon must use the procedure specified in 40 CFR § 264.1084 to comply with applicable portions of the Subpart CC regulations. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1086(a) as referenced by 40 CFR § 264.1082(b), [Subpart CC, Container Standards], The provisions of this section apply to the control of air pollutant emissions from containers for which Section 264.1082(b) of this subpart references the use of this section for such air emission control. Calgon did not comply with this portion of the Subpart CC regulations for the permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1086(d), [Subpart CC, Container Standards, Level 2 Standards], (1) A container using Container Level 2 controls is one of the following in (1)(i-iii). Calgon did not comply with this portion of the Subpart CC regulations for the permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1086(d)(2), [Subpart CC, Container Standards, Level 2 Standards], (2) Transfer of hazardous waste in or out of a container using Container Level 2 controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive, or other hazardous materials. Calgon did not comply with this portion of the Subpart CC regulations for the permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1086(d)(4)(iii), [Subpart CC, Container Standards, Level 2 Standards], (4) The owner or operator of containers using Container Level 2 controls shall inspect the containers and their covers and closure devices as follows in (i-iii). Calgon did not comply with this portion of the Subpart CC regulations for the permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA Section 3005 given in 40 CFR § 264.1086(g) referencing 40 CFR § 264.1086 (d)(1)(ii), [Subpart CC, Container Standards, Level 2 Standards], (g) To determine compliance with the no detectable organic emissions requirement of paragraph (d)(1)(ii) of this section, the procedure specified in Section 264.1083(d) of this subpart shall be used. Calgon did not comply with this portion of the Subpart CC regulations for the permitted hazardous waste storage containers. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Carbon Regeneration Unit

Spent carbon is received at Calgon by enclosed trailer, dump truck, or small container. Spent carbon received in containers may have small quantities of free liquid. Plant process water is added to the spent carbon to make spent carbon slurry and pumped into above ground tanks for storage.

The carbon regeneration unit (CRU) is located in the Carbon Reactivation Building. The CRU was constructed and began operation in 1979. The CRU was shut down on September 7, 2005 and was not operating at the time of this inspection due to scheduled maintenance work. Prior to the scheduled shut down, spent carbon slurry was processed by pumping it to a 12,000 gallon day tank (D-708) for bulking and batching. Once the batch was prepared, the carbon slurry was transferred to the furnace feed tank located on top of the CRU using a screw conveyor and intensive screener unit, which also serves as a dewatering unit. The dewatered carbon was next fed directly to the CRU.

The scheduled shut down included a modification to the waste process operation by decommissioning the furnace feed tank on or about September 8 through the 13, 2005. The tank was used to manage spent carbon slurry prior to treatment in the CRU. The KYDEP did not receive notification of the change in waste process operations.

Pursuant to RCRA permit standard condition Part III.E.10, the permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions that could affect solid waste management units at the facility. Calgon did not give notice to the Director of its actions to close the furnace feed tank.

Pursuant to RCRA permit standard condition Part III.B and RCRA § 3005 given in 40 CFR § 270.42(a)(2)/401 KAR 38:040, Section 3(1)(d), minor modifications listed in subsection (3)(d) of this section requiring "Prior Approval" shall be made only with the prior written approval of the cabinet. Calgon did not receive prior approval to modify its closure plan and close the furnace feed tank. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit specific condition Part II.G.3 and RCRA Section 3005 given in 40 CFR § 264.112(c)/401 KAR 34:070, Section 3, the owner or operator shall submit a written request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the procedures in 40 CFR § 270/401 KAR Chapter 38. The written request shall include a copy of the amended closure plan for approval by the cabinet. Calgon did not submit a written request for a permit modification to authorize a change in facility operation, design or approved closure plan. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.

Calgon's current waste process operation consists of bulking and batching spent carbon slurry in the

12,000 gallon day tank, processing in the screw conveyor and intensive screener, and direct feed to the CRU.

The CRU consists of seven hearths. The first two hearths fire at a temperature of 1,200 degrees Fahrenheit to promote drying of the spent carbon. The remaining hearths treat the spent carbon with the temperature at the bottom of the hearth at approximately 1,800 degrees Fahrenheit.

Treated carbon exiting from the CRU is cooled in a non-contact water rotary drum similar to the primary carbon manufacturing process, transferred to a product screener, and transferred by conveyor to the packaging tower.

Corrosive gases generated from the CRU are directed through the top of the CRU to the air pollution abatement facility consisting of a spray dry assembly unit (scrubber) and bag house dust collector unit.

Calgon submitted information on the CRU in response to EPA's requests, dated November 16, 2005, and May 25, 2006. The information requested by EPA was for the time period from January 1, 2004, to September 7, 2005. Calgon's compliance status with 40 CFR 265 Subpart P, is based on the information they provided.

Calgon provided three documents in response to EPA's request for written procedures for hazardous waste acceptance and handling, introduction of waste to the CRU, and the operation of the CRU. Calgon's documents consisted of Operating Manuals on the Reactivation Furnace, on Reactivation Trucks and on Reactivation Small Systems. EPA's review of these documents found they are not adequate to ensure appropriate or effective operation of the CRU or to define controlled (stable) operation of the CRU as opposed to upset (unstable) operation of the CRU which is essential to meeting the RCRA interim status regulatory goal for operation of this unit type.

- 3) **Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.373/401 KAR 35:250, Section 2. The owner or operator before adding hazardous waste, must bring his thermal treatment process to steady state (normal) conditions of operation (including steady state operating temperature) using auxiliary fuel or other means unless the process is a noncontinuous (batch) thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.**

Calgon did provide sampling forms and laboratory analyses for each hazardous waste treated and all repeated verifications to those hazardous waste analyses in their December 13, 2005, Question - 2 and June 26, 2006, Question - 6 response to EPA. The information requested by EPA was for waste sampling and analyses prior to burning of the hazardous waste.

Also, Calgon did not provide sampling forms and laboratory analyses on hazardous waste mixed in bulk prior to treating the waste in the CRU in their December 13, 2005, Question - 3 and June 26, 2006, Question 7 response to EPA. It appears Calgon does not analyze the concentration of the waste mixed in bulk in the Day Tank prior to burning it in the CRU. Therefore, it appears that Calgon can not ensure the quality of the reactivated carbon, nor ensure steady state conditions in the CRU.

② **Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.375/401 KAR 35:250, Section 3. The owner or operator must sufficiently analyze any waste which he has not previously treated in his thermal process to enable him to establish steady state (normal) or other appropriate (for a noncontinuous process) operating conditions (including waste and auxiliary fuel feed) and to determine the type of pollutants which might be emitted. At a minimum, the analysis shall determine: heating value of the waste; halogen content and sulfur content in the waste; and concentrations in the waste of lead and mercury unless the owner or operator has written, documented data that show that the element is not present. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.**

EPA requested Calgon provide all operating records for all parameters monitored during CRU hazardous waste treatment operations. Operating records for the CRU and air emissions control devices were provided. As required by 40 CFR § 265.377(a)(1), monitoring of the CRU and emissions controls must occur at least every 15 minutes. Calgon manually monitors and records furnace parameters once every two hours.

Also, EPA requested Calgon provide all operating records for all parameters monitored for the CRU stack emission controls during hazardous waste treatment operations (December 13, 2005, Question - 5 and June 26, 2006, Question - 8). In addition, Calgon provided only the error codes, an explanation of the codes, and the code parameter range in their June 26, 2006, Question - 8 response to EPA's information request. The data provided by Calgon in their December 13, 2005 response to EPA did not contain the records of all parameters monitored of the CRU and emissions controls at least every 15 minutes. The amount and cause of each parameter stack emission exceedance and any corrective action measure taken was not in Calgon's malfunction reports submitted on December 13, 2005 in response to EPA's information request.

③ **Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.377(a)/401 KAR 35:250, Section 4. The owner or operator must conduct, as a minimum, the monitoring and inspections requirements in 40 CFR § 265.377(a)(1)(2)&(3) when thermally treating hazardous waste. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.**

EPA requested Calgon provide all operating records for all parameters monitored during CRU emergency by-pass stack events (December 13, 2005, Question - 6 and June 26, 2006, Question - 9), including the total number and dates of the emergency by-pass events for the same time period mentioned above. EPA counted 67 emergency bypass/emission events during the selected time period, based on information submitted by Calgon.

EPA requested Calgon provide for each emergency by-pass event, information on the duration of the event and the emission observations during the by-pass event, records of the by-pass event root cause investigation and records of maintenance or modification to the unit or operations done to correct the by-pass event root cause. The log provided by Calgon in its June 26, 2006 response explained the cause for the by-pass event, but did not explain what was being burned in the CRU; the CRU's monitored operating parameters, the monitored emissions during the by-pass event, and the corrective measures taken to prevent a reoccurrence of the event.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.377(a)(1)/401 KAR 35:250, Section 4(1). Existing instruments which relate to temperature and emission control (if an emission control device is present) must be monitored at least every fifteen (15) minutes. Appropriate corrections to maintain steady state or other appropriate thermal treatment conditions must be made immediately either automatically or by the operator. Instruments which relate to temperature and emission control would normally include those measuring waste feed, auxiliary fuel feed, treatment process temperature, and relevant process flow and level controls. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.

EPA requested Calgon provide all operating records for all CRU hourly stack emissions observations (December 13, 2005, Question - 7 and June 26, 2006, Question - 10). The records provided by Calgon indicate they conduct stack emissions observations once per day. Calgon did not provide stack plume monitoring records as required by 40 CFR § 265.377(a)(2). Visual plume observations must be recorded at least hourly. Observation of abnormal plume appearance should be noted by visual description and duration as well as operator actions to correct plume appearance to normal condition.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.377(a)(2)/401 KAR 35:250, Section 4(2). The stack plume (emissions), where present, must be observed visually at least hourly for normal appearance (color and opacity). The operator must immediately make any indicated operating corrections necessary to return any visible emissions to their normal appearance. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.

EPA requested Calgon provide all operating records for all parameters monitored during CRU start up (December 13, 2005, Question - 8 and June 26, 2006, Question - 11). The React Furnace Logs submitted by Calgon indicate that the CRU was restarted on September 22, 2005 at approximately 7:00 AM. The React Furnace Log information ends on September 30, 2005 at 9:00 PM. Based on the information from the last logs provided by Calgon, furnace waste feed does not appear to have been restarted and furnace temperatures do not appear to have been stabilized prior to September 30, 2005. Additional, React Furnace Logs would be necessary to ensure proper startup.

Additional, records provided by Calgon in its June 26, 2006, Question - 11 response to EPA included monitoring of the air pollution control system. Calgon did not provide, at a minimum, the monitoring of waste feed rates, CRU temperatures, combustion air and steam temperature, quench water flow, spray dryer flow, and ash blow down. The records provided are incomplete and are not comprehensive of the units operations.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.373/401 KAR 35:250, Section 2. The owner or operator before adding hazardous waste, must bring his thermal treatment process to steady state (normal) conditions of operation (including steady state operating temperature) using auxiliary fuel or other means unless the process is a noncontinuous (batch) thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.

EPA requested Calgon provide the daily inspections log on the complete thermal unit process and

equipment; including emergency shutdown controls, system alarms, inspection for leaks, spills, fugitive emissions, flame break through and over pressurization (December 13, 2005, Question - 9 and June 26, 2006, Question - 12). Calgon only provided the inspections conducted on the react water treatment system.

⑦ **Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.377(a)(3)/401 KAR 35:250, Section 4(3). The complete thermal treatment process and associated equipment (such as pumps, valves, conveyors, and pipes, etc.) must be inspected at least daily for leaks, spills and fugitive emissions, and all emergency shutdown controls and system alarms must be checked to assure proper operation. Calgon is illegally treating hazardous waste in violation of RCRA § 3005.**

Access Road Adjacent to CRU

Inspection of this area found carbon spilled in several areas along the paved access road and on soil adjacent to the CRU building indicating that the carbon was not a product but a waste. Calgon staff could not determine at the time of the inspection, the source or the process that generated the waste carbon (photographs 45, 46, 47, & 48).

Based on Calgon's December 13, 2005 response to EPA, the waste carbon observed on the ground adjacent to the CRU building is where reactivated or primary activated carbon is handled or processed. Calgon did not submit laboratory analysis results on the waste carbon in response to EPA's November 16, 2005 information request.

Calgon did not meet the requirement of RCRA § 3005 given in 40 CFR § 262.11/401 KAR 32:010, Section 2, which requires a facility to make a proper hazardous waste determination for all solid waste generated by the facility. Calgon did not perform laboratory testing of waste carbon on the ground next to the CRU building to determine if it is hazardous waste.

CRU Spray Dryer Assembly Area (SDA)

This area is located in the Carbon Reactivation Building. The funnel-shaped metal hopper is located above a four to five foot high concrete containment area constructed with a floor, and three walls. The front of the containment area is open and constructed with a sloped concrete ramp. A container is placed under the hopper to accumulate spray dryer assembly solids.

Corrosive gases generated from the CRU are directed through the top of the CRU into an off-gas line constructed with a venture device. The gases are next directed through the spray dryer assembly (dry scrubber) system. An atomizer in the spray dryer assembly introduces water and sodium carbonate heated to 400 degrees Fahrenheit generating spray dryer assembly solids. Additional particulate emissions are directed to a bag house.

At the time of the inspection the SDA was not operating and appeared to be empty due to scheduled maintenance by Calgon's contractor "Mi-De-Con". The contractor was performing maintenance and inspectors observed a ladder inside the SDA hopper. Based on information provided by Calgon on December 13, 2005, the SDA was empty of all waste and had been pressured washed prior to the maintenance work.

Mi-De-Con employees were working in the area of the SDA at the time of the September 20-21, 2005 inspection. Based on Calgon's explanation all Mi-De-Con employees working on the SDA had received contractor safety training.

Inspectors observed a two to three foot high pile of hazardous waste (SDA solids) accumulating on the concrete floor surrounding the ladder and along the inside walls of the SDA containment area. The hazardous waste appeared to have been distributed onto paved areas outside of the SDA containment area by employees working in the area (photographs 32 & 33). Based on information provided by Calgon in its June 26, 2006 submittal, hazardous waste had been accumulating on the floor under the SDA Chute for approximately 6 hours.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 262.34 (a)(3)/401 KAR 32:030 Section 5(c). This regulation requires hazardous waste generators to clearly mark or label containers and tanks of hazardous waste with the words "Hazardous Waste." Calgon did not clearly mark or label a tank of hazardous waste with the words "Hazardous Waste" in the CRU Spray Dryer Assembly Area. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.31/401 KAR 35:030, Section 2. This regulation requires hazardous waste generators to maintain and operate the facility to minimize the possibility of a release of hazardous waste or hazardous constituents to the environment. As such, Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

CRU Bag House Area

This area is located next to the spray dryer assembly area. Bag house dust is directed to a dust collector containing four modules each consisting of 120 bags. A pulsating action is distributed through the bags releasing the dust from the bags through a funnel-shaped hopper into a tote. Three funnel-shaped telescopic chutes are used to distribute bag house dust into totes. A tote of bag house dust is collected every six to eight hours. The bag house area is constructed with a concrete floor with a concrete ramp outside the building which provides access inside the building. The bag house dust is a listed hazardous waste derived from the treatment of listed hazardous waste in the CRU. The bag house dust, which may contain numerous Appendix VIII hazardous constituents and underlying hazardous constituents listed in part 261, is used as a substitute for a portion of the hydrated lime product, in Calgon's wastewater treatment plant to treat corrosive waste water.

At the time of the inspection the bag house was not operating. Inspectors observed two areas of bag house dust three to six inches high accumulating on the concrete floor. Inspectors observed the dust had been run over by a vehicle and distributed to paved areas outside of the building (photograph 34).

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.31/401 KAR 35:030, Section 2. Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Acid Wash Wastewater Treatment Tank

The treatment system was not operating at the time of this inspection. Based on information provided by Calgon on December 13, 2005 and June 26, 2006, all acid wash reactor effluent, consisting of acidic wastewater is treated in a common neutralization tank. The wastewater is treated continuously in 25,000 gallon batches four times per day. The wastewater contains iron, chromium and other acid soluble metals found in the raw carbon. The wastewater is primarily treated by using a slaked hydrated lime solution pumped to the tank. Approximately 2,000 to 2,200 pounds of hydrated lime is used per batch. CRU bag house dust is educted from a separate feed tank to the neutralization tank as a substitute for part of the hydrated lime solution. Approximately 1,100 to 1,300 pounds of CRU bag house dust is used per batch. The percent of residual free soda in the CRU bag house dust varies based on laboratory bench tests conducted by Calgon. The rate of lime solution addition is controlled based on a continuous pH measurement of the tank's effluent. Treated wastewater effluent is discharged to the storm water lagoon drainage channel. The channel drains to the storm water lagoons with final discharge to the Big Sandy River. No sludge is accumulated and/or removed from the neutralization tank. Calgon explained that very small amounts of fines in solution may be discharged to the storm water lagoons and are removed when the lagoons are dredged.

It appears from past RCRA inspections that EPA's finding concerning the use of bag house dust used as a product substitute to neutralize the wastewater from the acid wash operation was not a regulatory issue. However, upon further review of the issue by EPA, it appears that Calgon's use of bag house dust as an effective substitute for a commercial product may not meet the requirements of 40 CFR § 261.2(e)(1)(ii).

Based on information provided by Calgon in its December 13, 2005 submittal, the following amount of CRU bag house dust listed in Table 2 was used in 2003, 2004, and 2005 as a substitute for hydrated lime to treat wastewater in the neutralization tank.

Table 2

Year	Bag House Powder (pounds)
2003	1,505,366
2004	1,435,208
2005	1,210,620 (through Sept. 2005)

Calgon receives hazardous waste from off-site customers for treatment in its CRU. Calgon's bag house dust is a listed hazardous waste because it is derived from the treatment of hazardous waste per 40 CFR § 261.3(c)(2). In addition, the dust is defined as a listed sludge because it is generated from an air pollution control facility per 40 CFR § 260.10. In addition, a material that is a listed sludge is a solid waste when reclaimed per 40 CFR §261.2(c)(3).

In addition, the material may contain toxic constituents listed in Appendix VIII of 40 CFR Part 261 in which these constituents are not ordinarily found in a raw material or product for which the material is substituted and are not used or reused during the recycling process.

Pursuant to 40 CFR § 261.2(e)(1)(ii)/401 KAR 31:010, Section 2(1)(a)(2), Materials that are not solid waste when recycled. Materials are not solid wastes when they can be shown to be recycled by being used or reused; Employed in a particular function or application as an effective substitute for a commercial product. Calgon has not demonstrated that bag house dust generated

from the CRU's air pollution control system is an effective substitute for hydrated lime.

Storm Water Lagoons

The storm water lagoons are made of earthen clay and located in the rear of the property along the Big Sandy River. The lagoons receive treated effluent from the acid wash wastewater treatment tank, wash water containing primary activated carbon, boiler condensate and backwash water, flue gas scrubber wastewater, non contact cooling water, storm water runoff, carbon reactivation wastewater, and sanitary wastewater. Based on information provided by Calgon on December 13, 2005 and June 26, 2006, storm water flows primarily by open drainage channels to short sections of enclosed channels that flow to combined storm water and scrubber blow down wastewater sumps. The water is next pumped to either lagoon number 1 or number 2. Carbon solids settle in lagoons 1 and 2 and the effluent from the lagoons is transferred to lagoon number 3 for further retention. Water from lagoon 3 is pumped to Calgon's NPDES permitted outfall number 001 with final discharge to the Big Sandy River. The lagoons are dredged when there is an excess of solids in the lagoon system. The excavated carbon solids have been sampled and analyzed for its BTU value by the vendor. The carbon solids are provided to a vendor who sells it to a coal supplier (photographs 49, 50, 51 & 52).

NPDES Outfall 001 Monitoring Requirements

Calgon's NPDES permit requires samples taken at the nearest accessible point after final treatment, but prior to actual discharge or mixing with receiving waters. The effluent characteristics monitored at the outfall include flow per day, total suspended solids, oil and grease, hardness, total phenols, temperature, chlorides, and acute toxicity monthly and/or quarterly. Additional monitoring for priority pollutants except pesticides is conducted annually.

Carbon Sediment Pile

The carbon sediment pile is located next to the storm water lagoons. Inspection of this area found a large pile of carbon sediment generated from dredging the bottom of the storm water lagoons. Calgon offers the carbon sediment to a vendor who sells it to a coal supplier (photograph 1).

Calgon did not meet the requirement of RCRA § 3005 given in 40 CFR § 262.11/401 KAR 32:010, Section 2, which requires a facility to make a proper hazardous waste determination for all solid waste generated by the facility. Calgon did not perform laboratory analysis on carbon sediment dredged from the storm water lagoons.

Wastewater Treatment System

Wastewater generated from the spent carbon storage area and the activation unit is processed in an on-site treatment system located in the Carbon Regeneration Building. The wastewater is pumped directly to the wastewater treatment system.

The wastewater is first pumped to a sedimentation tank which is used to remove carbon solids. The effluent is pumped to a clarifier for additional solids removal and next to either the east or west carbon bed absorbers. The sludge generated in the clarifier and the filter cake generated from the filter press is handled as hazardous wastes. Both waste streams are shipped offsite for disposal. Treated wastewater is stored in the treated water tank for reuse.

Filter Press Area

The press is a plate and frame unit which generates a cake from dewatering the wastewater sludge. At the time of the inspection the filter press was closed and not operating. No hazardous waste was accumulating in this area.

Main Facility Maintenance Building

Facility maintenance operations consist of inspecting, maintaining, and repairing mechanical and electrical units located throughout the facility. Activities consist of disassembly, inspection and repair of mechanical feeders, gear boxes, pumps, transmission systems, screw conveyors, elevators, and beltlines. Broken pipes are also repaired. The equipment evaluation includes determining component failure and/or part wear out and the decision to repair or replace. Aerosol sprays containing volatile and semi-volatile organic compounds are sprayed directly on dirty parts or on a cloth rag to degrease the part.

Maintenance staff conducts fluorescent lamp replacement, drains and replace motor oil and hydraulic fluid in equipment. Calgon uses a contractor to service the forklifts. Waste generated from forklift maintenance is managed on-site by Calgon.

Inspection of the maintenance building found one 15 gallon part washer used to clean and degrease parts. The spent fluid is managed by a vendor for recycling.

Mobile Shop

Inspectors observed two large containers accumulating spent cloth gloves and cloth rags. The gloves and rags are offered to a uniform cleaning company for laundering.

Inspectors observed a plastic cabinet that is used to accumulate spent fluorescent lamps. Inspectors found several four foot lamps accumulating in a cardboard box. No discrepancies were observed.

Used Oil Storage Area

The storage area is located next to the main facility maintenance building. This area is constructed with a concrete floor and surrounded with an eight inch high concrete curb and fence. Inspection of this area found a 1,500 gallon above ground tank of used oil located within a concrete containment area. Inspectors observed a release of used oil to the concrete containment area under the entire length of the tank. The tank was marked with the words "used oil".

Calgon should meet the requirements of 40 CFR § 279.22(d)/401 KAR 44:020 Section 3(4). Calgon should respond to a release of used oil to the environment and perform the cleanup steps explained in 40 CFR 279.22(d)(1-4)/401 44:020 Section 3(4)(a-f).

A metal pan located on the floor next to several drums of petroleum product is used to accumulate drips and spills generated from the product rack. The pan contained approximately three to four inches of used oil and was not marked or labeled as used oil.

Calgon should meet the requirement of 40 CFR § 279.22(c)/401 KAR 44:020 Section 3(3) for marking or labeling containers of used oil with the words "used oil."

Calgon performs work on forklifts and on other heavy equipment. This area is constructed with a

concrete floor and surrounded with a concrete curb and fence. Spent batteries generated from forklifts are exchanged for new batteries. Spent batteries were not accumulating in this area at the time of the inspection. Inspectors observed a 1,500 gallon above ground tank of used oil located within a concrete containment area. The containment area was dry and the tank was marked with the words "used oil".

Inspectors observed a closed container accumulating spent oil filters and fuel filters located in front of the mobile shop. The container was marked with the words "used filters".

Pro Shop

This shop is located next to the CRU building. Calgon disassembles and cleans equipment used in the CRU. This area is constructed with a concrete floor and surrounded with a concrete curb and fence. Inspection of the shop found a 500 gallon aboveground plastic tank which was no longer in service. Inspectors observed one to two inches of a white solid material accumulating in the tank. Inspectors also observed personnel protective equipment, spent aerosol cans, and electrical wire in the tank. Art Porter explained to inspectors that the solid material in the tank was soda ash (photographs 43, & 44).

Based on information provided by Calgon on December 13, 2005, Calgon stated that the content in the tank was reported as spent dicalite used for water treatment by Reactivation Technicians. Calgon removed the contents from the tank and placed it in the hazardous waste roll off for disposal. Generator knowledge documentation and/or laboratory analysis was not submitted by Calgon in response to performing a waste determination.

Calgon did not meet the requirement of RCRA § 3005 given in 40 CFR § 262.11/401 KAR 32:010, Section 2, which requires a facility to make a proper hazardous waste determination for all solid waste generated by the facility. At the time of this inspection Calgon had not perform a waste determination on solid waste accumulating in an aboveground tank located in the Pro Shop to determine if it is hazardous waste.

10) Waste Management Practices

Hazardous waste received at Calgon is stored in tanks or containers. Hazardous waste generated by Calgon is accumulated in containers for 90 days or less prior to off-site shipment to a treatment, storage or disposal facility (TSDF). Hazardous waste stored, treated and/or accumulated by Calgon consists of, but is not limited to: ignitable hazardous waste; corrosive hazardous waste; reactive hazardous waste; toxic hazardous waste; F, K, U, and P listed hazardous waste.

Corrosive wastewater generated from primary granulated carbon production is treated in a tank system prior to its discharge to storm water lagoons constructed in series, with final discharge of the effluent to the Big Sandy River under an NPDES permit.

Hazardous waste transporters used by Calgon in 2003, 2004 and 2005.

1. Hazmat Environmental Group – NYD 980 769 947
2. Dart Trucking Company – OHD 009 865 825
3. Superior Carriers – ILD 984 887 323

TSDFs used by Calgon in 2003, 2004 and 2005.

1. Clean Harbors Canada, Inc. – MIR 000 035 204
2. Spring Grove Resource Recovery – OHD000816629

11) Generator Record Review

Manifests

Several manifests were reviewed from June 2004 to September 2005. Manifests received from generators (incoming manifests) of hazardous waste are signed by various Calgon employees. Employees who are RCRA trained and responsible for signing incoming manifests in 2003 include; Ed Frame, Phil Plummer, and Joe Childers. Employees RCRA trained and responsible for signing incoming manifests in 2004 and 2005 include the following employees: John W. Patterson; Ed Frame; James H. Bruce; David Click; Kim Hulett; Phil Plummer; Joe Childers and Ana Boyl who is RCRA trained and responsible for signing outgoing manifests in 2005.

Waste Analysis

EPA asked Calgon in the November 16, 2005, information request to explain how the release of spent carbon to the paved road and on the soil adjacent to the CRU building occurred and to provide copies of all sampling and laboratory analyses on the spent carbon. EPA also requested Calgon to provide all sampling and laboratory analyses for virgin activated granular carbon, for carbon sediment excavated from the storm water lagoons, for spray dryer assembly fines (soda ash solids), and for bag house dust.

Based on information provided on December 13, 2005, Calgon explained that the waste carbon observed on the ground next to the CRU building was the result of spills from the handling and processing of reactivated or primary activated carbon. Calgon did not provide the sampling and laboratory analyses on waste carbon observed on the ground.

Calgon provided a summary table showing elemental analysis results for their most commonly produced primary activated granular carbon products and the resulting concentration levels for several metal analytes. Chromium was a constituent reported on the summary table that is a TC regulated metal found in 40 CFR § 261.24. Calgon analyzed its primary activated granular carbon products in September 1993, December 1998, June, July and September 2000, October 2001, and February 2003. Calgon's summary table showed most chromium results at low concentrations, however Calgon's carbon products "F400", "CPG-LF", and "CAL" show concentrations of 284.5, 303, and 422 parts per million.

Based on information provided by Calgon on December 13, 2005, the carbon sediment excavated from the storm water lagoons are from processes that generate only primary activated carbon. However, some of the carbon excavated from the storm water lagoons may be solids that were generated from the use of bag house dust to treat acidic wastewater. Calgon also explained that the carbon sediment is not sampled and analyzed on a regular basis. Sampling and laboratory analyses were not provided on the carbon sediment.

Pursuant to RCRA Section 3005 given in 40 CFR § 265.13(a)(1)/401 KAR 35:020, Section 4(1)(a), before an owner or operator treats, stores, or disposes of any hazardous wastes, or non-hazardous wastes, if applicable, under 40 CFR § 265.113(d), he must obtain a detailed chemical and physical analysis of a representative sample of the waste. Calgon did not perform laboratory analyses on

the spent carbon sediment stored on the ground next to the CRU building to determine if it is hazardous waste. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Calgon provided records for five sampling events and five laboratory analysis reports on spray dryer assembly fines (described as scrubber waste, spent soda, soda ash, SDA material). The sampling forms were dated 1/10/03, 2/6/03, 2/28/03, 4/4/03 and 6/17/03.

The laboratory analyses for the spray dryer assembly fines completed by REI Consultants, Inc., dated 1/17/03, 3/11/03, and 4/18/03 included TCLP metals (test method SW1311). The results did not exceed the maximum TC regulatory level for metals stated in 40 CFR § 261.24. The laboratory report dated 4/18/03 for TCLP volatile organic compounds (SW1311) and volatile organic compounds (SW8260B) did not exceed the maximum TC regulatory level for volatile organics stated in 40 CFR § 261.24. The laboratory analysis dated 6/24/03 included fluoride (E300), alkalinity (SM2320B), and sodium (SW6010B). The result for fluoride, alkalinity and sodium were reported as 49,700 mg/Kg, 6,110 mg/L, and 15,600 mg/L, respectively. The laboratory report dated 2/13/03 for TCLP metals exceeded the maximum TC regulatory level for mercury of 0.2 mg/L as stated in 40 CFR § 261.24. The result for mercury was reported as 0.272 mg/L exceeding the TC maximum concentration.

At the time of the inspection, EPA reviewed six laboratory analyses for spray dryer assembly fines in 2001 and five laboratory analyses in 2002 for full or partial TCLP analysis. The results reported did not exceed the TC maximum concentrations.

Calgon submitted in its December 13, 2005, response two laboratory analyses for bag house dust completed by REI Consultants, Inc., dated 3/30/01 and 4/13/03. The analyses included TCLP metals, TCLP VOCs, and/or VOCs using test method SW-8260B. Calgon also submitted in-house laboratory bench sheets dated September 3, 2004, to November 29, 2005. The bench sheets reported the percent of free soda in each sample of CRU bag house dust. The residual free soda ranged from 3 percent to 60 percent.

Pursuant to RCRA Section 3005 given in 40 CFR § 265.13(a)(1)/401 KAR 35:020, Section 4(1)(a), before an owner or operator treats, stores, or disposes of any hazardous wastes, or nonhazardous wastes, if applicable, under 40 CFR § 265.113(d), he must obtain a detailed chemical and physical analysis of a representative sample of the waste. Calgon did not perform a detailed chemical and physical analysis on bag house dust. Calgon is illegally disposing of hazardous waste in violation of RCRA § 3005.

Contingency Plan

Based on information provided by Calgon on December 13, 2005, the facility revised its contingency plan in February 2004, and revised the emergency coordinators list in July 2005. The contingency plan was also submitted as a part of Calgon's RCRA permit renewal application. The revised February 2004 contingency plan describes the actions personnel will take in response to fire, explosion or any unplanned sudden or non-sudden release of hazardous waste. The contingency plan includes an evacuation plan and a facility layout of escape routes. The plan includes a list and a brief description of emergency equipment and fire fighting equipment and the locations of the equipment. The contingency plan describes the coordination agreements made with the local authorities, and state and local emergency response teams, and describes that a copy of the contingency plan will be issued to those

agencies. The plan does not discuss an agreement made with an emergency response contractor and equipment supplier.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.52(c)/401 KAR 35:040, Section 3(3) as incorporated by 40 CFR § 262.34(a)(4)/401 KAR 32:030 Section 5(1)(d). Calgon did not provide a discussion in the contingency plan on an agreement made with an emergency response contractor and equipment supplier. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Arrangements with Local Authorities

Based on information provided by Calgon on December 13, 2005, the facility submitted an Interlocal Cooperative Agreement signed by the cities of Ashland, Catlettsburg, and Belefonte, and by Boyd County in May 1999, to create a Regional Public Safety Communications Center (RPSCC). The RPSCC was created to provide a more cost effective communications system, especially with emergency medical, fire, and police services.

Calgon explained in its contingency plan that it made coordinated agreements with the Boyd County Sheriff's Department, the Public Safety Department in Ashland, the Catlettsburg Fire Department, the King's Daughter Hospital, and state and local response teams. Calgon explained in its contingency plan that the local authorities have a copy of the plan.

Based on information provided by Calgon on December 13, 2005, the facility's most recent arrangement with the fire department was on November 15, 2005, with the England Fire Department. A copy of the Contingency Plan was submitted to the fire department prior to the inspection.

Required Equipment/Access to Communications or Alarm Systems

Inspection of Calgon's equipment system found that it is equipped with portable fire extinguishers, water at adequate volume and pressure, and a public address and alarm system and/or employees have access to telephones and hand held radios.

Written 90 Day or Less Container Storage Inspection Logs

Calgon is required to conduct a weekly inspections on containers stored for 90 days or less. Based on records provided by Calgon on December 13, 2005, the facility conducts daily inspections on small containers. EPA reviewed the small container records for the period December 8, 2004, to September 27, 2005. The records did not specify whether the containers inspected were managed in the less than 90 day area or for containers managed in the permitted storage area. Therefore, it appears that Calgon is not documenting weekly inspections of the less than 90 day area.

Calgon did not meet the requirement in 401 KAR 35:180, Section 5, which requires the owner or operator to inspect areas where containers are stored, at least weekly, looking for leaks and for deterioration of containers and the containment system caused by corrosion or other factors.

Calgon did not meet the requirement in 401 KAR 35:020, Section 6(4), which requires the owner or operator to record inspections in an inspection log or summary. The owner or operator must keep these records for at least three (3) years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the Calgon

observations made, and the date and nature of any repairs or other remedial actions.

Personnel Training Records

Calgon staff is given annual training in safety, personal protective equipment, identification of hazardous waste, hazardous waste management standards, and emergency response/contingency planning. The trainee is given a multiple choice quiz after the training session. EPA reviewed Calgon's hazardous waste training outlines for 2003, 2004, and 2005. The outline appears to meet the training requirements in 40 CFR § 265.16(a). Calgon staff were also given Carbon Acceptance training and Environmental Awareness training in March 2005. A total of 70 employees were given RCRA training in 2003, 66 employees were given RCRA training in 2004, and 61 employees were given RCRA training in 2005. Calgon employees given RCRA training consist of persons representing five job functions described by Calgon as "React Job Bid," "React Qualified," "Laboratory," "Maintenance," and "Salary" staff.

Based on information provided by Calgon on December 13, 2005, employees are also given classroom or on-the-job training in process operations, utilities, water treating, waste treating and handling, record keeping, safety policies and procedures, and in carbon acceptance and manifest procedures. Employees are given a half day of class room training in hazards to human health, waste management procedures, container management, the manifest system, inspections, and in contingency plan, alarms, and security.

Jan Kountz is the Environmental Coordinator and the primary emergency coordinator at Calgon. Ms. Kountz was given training in Hazardous Waste Management by the Environmental Resource Center in Cary, North Carolina. Ms. Kountz's training certificate indicates she completed the course in November of 2004. Ms. Kountz was given RCRA training, manifest training, environmental awareness, and universal waste training in 2004 and 2005. Steve Stumbo is the React Coordinator and also the first alternate emergency coordinator. Mr. Stumbo was given RCRA training, manifest training, environmental awareness, and universal waste training in 2003, 2004, and 2005. Ann Boyl signs outgoing hazardous waste manifests for Calgon. Based on information provided by Calgon on December 13, 2005, Ms. Boyl was given RCRA manifest training, and environmental awareness and universal waste training in 2005. K.P. Abraham is the Production Manager and also the second alternate emergency coordinator. K.P. Abraham was given RCRA, manifest, and universal waste training in 2005. Mr. Abraham was not on the RCRA training list submitted by Calgon for trained employees in 2003 and 2004. Art Porter was not on the RCRA training list submitted by Calgon for trained employees in 2003, 2004, and 2005.

Based on information provided by Calgon on December 13, 2005, and June 26, 2006, staff assigned to the positions of React Coordinator, React Technician, React Assistant Technician, and Environmental Engineer/Staff Environmentalist, documented RCRA training with records consisting of the employee name, job title, job description, the type of training given, and the year the training was given. Written job descriptions were not provided for staff assigned to plant/production management, laboratory, maintenance positions, and manifesting duties.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.16 (d)(2)/401 KAR 35:020, Section 7(4)(b), which requires the owner or operator to maintain records in accordance with 40 CFR 265.16(d)(2). Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Based on information provided by Calgon on December 13, 2005, and June 26, 2006, Mi-De-Con employees received Calgon's specific contractor safety training prior to working at the facility. However, the contractor training records were not submitted by Calgon in response to EPA's information request.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.16 (a)(1&2)/401 KAR 35:020, Section 7(1)(a&b), which in part requires, facility personnel to successfully complete a program of classroom instruction or on-the-job training in hazardous waste management and contingency plan implementation. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Calgon did not adhere to a condition for exemption from RCRA § 3005 given in 40 CFR § 265.16 (d)(2)/401 KAR 35:020, Section 7(4)(b), which requires the owner or operator to maintain records in accordance with 40 CFR 265.16(d)(2). Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

12) TSDF Record Review

Manifests

Several outgoing hazardous waste manifests (total of 33 manifests) were reviewed from January 2005, to September 2005. Hazardous waste generated by Calgon is shipped to Clean Harbors Canada, Inc. (MIR 000 035 204). Ana Boyl is responsible for signing outgoing hazardous waste manifests.

Waste Analysis

Prior to Calgon accepting a first time customer's hazardous waste the customer is required to follow Calgon's waste analysis process. The customer completes a "Adsorbate Profile Document" (APD) and submits a sample of the spent carbon for laboratory analysis. Calgon matches the laboratory results of the sample with the APD prior to accepting the customer's hazardous waste. Once the customer is accepted Calgon completes a Carbon Acceptance Report and creates a Report Number. The number is coded with the letter "N" for non-hazardous waste, or "R" for hazardous waste.

Review of three laboratory analysis reports for accepted hazardous waste by Calgon found elevated reporting limits for the laboratory samples analyzed.

Contingency Plan

Calgon was issued a modification to its Part B permit dated October 31, 1995. The modification consisted of replacing the existing contingency plan with a new contingency plan and several attachments. The modified contingency plan describes the actions personnel will take in response to fires, explosions or any unplanned sudden or non-sudden release of hazardous waste. The contingency plan includes an evacuation plan and a facility layout of escape routes. The plan includes a list and a brief description of emergency equipment and fire fighting equipment, and the locations of the equipment. The contingency plan describes the coordination agreements made with the local authorities, and state and local emergency response teams, and that a copy of the contingency plan be issue to those agencies. The plan does not discuss agreements made with an emergency response contractor, and equipment supplier.

Pursuant to RCRA permit specific condition II.D.1 and RCRA Section § 3005 given in 40 CFR §

264.52(c)/401 KAR 34:040, Section 3(3), Calgon did not provide a discussion in the contingency plan on an agreement made with an emergency response contractor and equipment supplier. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Arrangements with Local Authorities

Calgon stated in its contingency plan that it made coordinated agreements with the Boyd County Sheriff's Department, the Public Safety Department in Ashland, the Catlettsburg Fire Department, the King's Daughter Hospital, and state and local response teams. Calgon also stated in its contingency plan that the local authorities have a copy of the plan.

Required Equipment/Access to Communications or Alarm Systems

Inspection of Calgon's equipment system found it is equipped with portable fire extinguishers, water at adequate volume and pressure, and a public address and alarm system and/or employees have access to telephones and hand held radios. Fire fighting equipment is available throughout the facility. Emergency equipment consisting of SCUB gear, respirators, and impervious personnel protective equipment are maintained in several areas of the facility. Bags of activated carbon are available to respond to a release or spill.

Permitted Hazardous Waste Container Inspection Logs

Based on information provided by Calgon on December 13, 2005, the facility conducts daily written inspections on containers using a form designated as the "Small Container – Daily Inspection Log". Calgon submitted container logs for the period December 8, 2004, to September 27, 2005. EPA's review of the inspection logs found that the inspection form currently used by Calgon is different than the form in Calgon's RCRA permit modification. It was not clear to EPA whether the inspection logs were for inspections conducted on containers in the 90 day or less area or on containers stored in the permitted unit, even though EPA requested written inspection logs for both areas. The inspection logs did not indicated inspection of the permitted storage area's floor or secondary containment system, or the condition of emergency equipment, alarm systems, security systems, signs, personnel protective equipment, and emergency spill response equipment. The inspection logs did not provide the total volume of hazardous waste stored in the RCRA permitted area.

Pursuant to RCRA permit specific condition (Part II, Section II.I.5) and/or Part VI, Attachment II, Section F-2(1) and RCRA Section 3005 given in 40 CFR § 264.174/401 KAR 34:020, Section 6(4) and 401 KAR 34:180, Section 5, Calgon did not record inspections in an inspection log or summary in accordance with the requirements of the RCRA permit condition II.I.5. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Permitted Hazardous Waste Tank Inspection Logs

Calgon is required to inspect hazardous waste tanks in Area A for weekly and daily operating requirements. Tanks in Area A must be inspected daily for the level of hazardous waste and for leakage of hazardous waste from pipes and valves. The tanks must be inspected weekly for leaks and corrosion. Visual inspections of the tanks and equipment are made annually as described in Part VI, Attachment II, Inspection Schedule, Section F-2, Appendix F-1, of the RCRA permit, to indicate any problem with linings or containment. The tank shell must be inspected annually for thickness and for the condition of the lining.

Based on information provided by Calgon on December 13, 2005, the facility submitted tank inspection logs for the period December 8, 2004, to September 27, 2005. EPA's review of the inspection logs found that the inspection form currently used by Calgon is different than the form in Calgon's RCRA permit modification. EPA could not clearly determine from the written inspection logs submitted, whether hazardous waste tanks in Area A or Area B were inspected based on the requirements of the RCRA permit. The inspection logs indicate that Calgon is not inspecting the spent carbon sump, the spent carbon slurry pump, the dirty water pumps, and the truck unloading as required by Item 24 of the October 31, 1995, RCRA permit modification (Part VI, Attachment II, Inspection Schedule, Section F-2, Appendix F-1).

Calgon is required to inspect hazardous waste tanks in Area B for weekly and daily operating requirements. Tanks in Area B must be inspected daily for the level of spent carbon, temperature (as needed for operation), and for leaks of hazardous waste from pipes and valves. The "Eductor" must be inspected daily for leaks. The outside surface of the tanks must be inspected weekly to detect leaks, cracks, and other conditions. The tank level gauges must be inspected monthly. The interior of each tank must be inspected every two years. If no deterioration is evident the inspection frequency will become once every four years as described in Part VI, Attachment II, Inspection Schedule, Section F-2 of the RCRA permit.

Based on information provided by Calgon on December 13, 2005, and June 26, 2006, the facility submitted tank inspection logs for the period December 8, 2004, to September 27, 2005. EPA's review of the inspection logs found that the inspection form currently used by Calgon is different than the form in Calgon's Part B permit modification. EPA could not clearly determine whether hazardous waste tanks in Area A or Area B were inspected based on the written inspection logs submitted. The inspection logs indicate that Calgon is not monitoring tank temperature (when used for operations), is not inspecting the day tank, the dirty water tank, the deister dirty water tank, and the deister feed storage tank as required by Item 24 of the October 31, 1995, Part B permit modification (Part VI, Attachment II, Inspection Schedule, Section F-2).

Pursuant to RCRA permit Part VI, Attachment II, Section F-2(a) and RCRA Section 3005 given in 40 CFR § 264.195/401 KAR 34:020, Section 6(4) and 401 KAR 34:190, Section 6(2)(a), Calgon did not record inspections in an inspection log or summary in accordance with the requirements of the Part B permit. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Based on information provided by Calgon on December 13, 2005, and June 26, 2006, the facility submitted tank inspection logs for the period December 8, 2004, to September 27, 2005. The inspection logs show that Calgon did not inspect the secondary containment system for tanks in Area B.

Pursuant to RCRA permit specific condition Part II.B.4 and RCRA § 3005 given in 40 CFR § 264.195(b)(3)/401 KAR 34:190 Section 6(2)(c), The owner or operator shall inspect at least once each operating day; the construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system to detect eroding conditions or signs of releases of hazardous waste. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Hazardous Waste Storage Tank Annual Inspections

Calgon modified its Part B permit on October 31, 1995, deleting the Part VI, Attachment IV, Tank Management Practice and replacing it with the Part IV, Attachment IV Container Storage and Tank Management Practices.

Calgon's above mentioned permit modification requires it to visually inspect the tanks and equipment in Area A annually, as described in the Inspection Schedule, Section F-2 of the permit. The tanks are to be inspected annually to determine any problems with linings or containment. The tank shell must be inspected annually for thickness and for the condition of the lining.

Inspection of the hazardous waste tanks in Area B are to be inspected as described in the Inspection Schedule, Section F-2 of the permit.

Hazardous waste tanks in Area B are to be inspected every two years for consecutive inspections. In the event no deterioration is evident from the two inspections, the inspection frequency becomes once every four years. The inspections are qualitative in nature. Calgon is required to check the appearance of the tank surface, and to inspect the secondary laminates at joints, man ways, and nozzles. Calgon did not inspect the hazardous waste tanks in Area A and Area B as described in the RCRA permit.

Pursuant to RCRA permit Part IV, Attachment IV, Container Storage and Tank Management Practices, and RCRA Section 3005 given in 40 CFR § 264.190/401 KAR 34:190, Calgon did not inspect the hazardous waste tanks in Area A and Area B as described in the RCRA permit Inspection Schedule, Section F-2 (Part VI, Attachment II). Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Pursuant to RCRA permit Part VI, Attachment II, Inspection Schedule, Section F-2(a), General Inspection requirements, and RCRA Section 3005 given in 40 CFR § 264.15(d) & 40 CFR § 264.73(b)(5)/401 KAR 34:020 Section 6(4) & 401 KAR 34:050 Section 4(2)(e), the owner or operator shall record inspections in an inspection log or summary. He shall keep these records for at least three (3) years from the date of inspection. At a minimum, these records shall include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions. In addition, records and results of inspections must be kept in the operating record. Calgon did not record and/or maintain inspection logs in the operating record documenting the condition of the tanks in Area A & B. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Personnel Training Records

Calgon staff is given annual training in safety, personal protective equipment, identification of hazardous waste, hazardous waste management standards, and emergency response/contingency planning. The trainee is given a multiple choice quiz after the training session. EPA reviewed Calgon's hazardous waste training outlines for 2003, 2004, and 2005, which appear to meet the training requirements in 40 CFR 264.16(a). Calgon staff were also given Carbon Acceptance training and Environmental Awareness training in March 2005. A total of 70 employees were given RCRA training in 2003, 66 employees were given RCRA training in 2004, and 61 employees were given RCRA training in 2005. Calgon employees given RCRA training consist of persons representing five job functions described by Calgon as "React Job Bid," "React Qualified," "Laboratory," "Maintenance," and "Salary" staff.

Based on information provided by Calgon on December 13, 2005, employees are also given classroom or on-the-job training in process operations, utilities, water treating, waste treating and handling, record keeping, safety policies and procedures, carbon acceptance, and manifest procedures. Employees are given a half day of classroom training in hazards to human health, waste management procedures, container management, the manifest system, inspections, the contingency plan, alarms, and security.

Based on information provided by Calgon on December 13, 2005, and June 26, 2006, staff assigned to the positions of React Coordinator, React Technician, React Assistant Technician, and Environmental Engineer/Staff Environmentalist, documented RCRA training with records consisting of the employee name, job title, job description, the type of training given, and the year the training was given. Written job descriptions were not provided for staff assigned to plant/production management, laboratory, maintenance positions, or manifesting duties.

Pursuant to RCRA permit specific condition II.B.5.a and RCRA Section 3005 given in 40 CFR § 264.16(d)(2)/401 KAR 34:020, Section 7(4)(b), Calgon did not maintain documents and records at the facility consisting of a written job description for each position listed under paragraph (a) of this subsection. Calgon is illegally storing hazardous waste in violation of RCRA § 3005.

Closure Plan

Calgon's closure plan was reviewed.

Closure Cost Estimate

Based on information provided by Calgon on December 13, 2005, the facility's closure cost estimates were calculated based on 2004 dollars. In addition the Standby Letter of Credit issued by the financial institution expired on October 1, 2004

Financial Assurance

Based on information provided by Calgon on December 13, 2005, the facility obtained liability insurance coverage for sudden and non-sudden accidental occurrences effective April 1, 2005.

Land Ban

Calgon is a hazardous waste generator, storage and treatment facility. The facility treats hazardous waste that is restricted from land disposal. The facility failed to maintain land disposal restriction (LDR) notifications and/or certifications with each shipment of hazardous waste received from generators of hazardous waste.

Based on information provided by Calgon in its December 13, 2005, submittal, the facility was missing 324 LDR notifications and certifications with incoming shipments of hazardous waste from June 2004, to October 2004. Table 3 lists the of LDR forms missing from incoming hazardous waste in each month.

Table 3

Month and Year	Number of LDRs Forms Missing With Generator Manifest
June 2004	81
July 2004	56
August 2004	55
September 2004	56
October 2004	76


Calgon Carbon Corporation
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Pursuant to RCRA permit standard condition III.G.2., and RCRA Section 3004(m) given in 40 CFR 264.73(11) and/or (12)/401 KAR 34:050, Section 4(2)(k) and/or (l), Calgon must maintain at the facility in the operating record and until closure of the facility a copy of the LDR notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under 40 CFR § 268.7 or 40 CFR § 268.8. Calgon is illegally storing hazardous waste in violation of RCRA § 3004(m).

13) Conclusion

Upon conclusion of the inspection an exit interview was conducted in the presence of Calgon Carbon Corporation representatives. Calgon Carbon Corporation was inspected as a hazardous waste large quantity generator and a hazardous waste treatment and storage facility and was not in compliance with the regulations cited above at the time of this inspection.

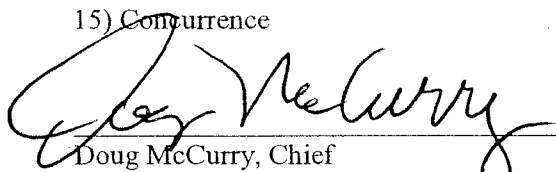
14) Signed



William Kappler
Environmental Scientist
North Enforcement and Compliance Section

1/5/07
Date

15) Concurrence



Doug McCurry, Chief
North Enforcement and Compliance Section
RCRA and OPA Enforcement and Compliance Branch

1/10/07
Date

Calgon Carbon Corporation
September 20 & 21, 2005